

WHAT IS CLAIMED IS:

- 1                   1.       An isolated nucleic acid encoding an SSG polypeptide, said  
2 polypeptide comprising an amino acid sequence that is at least about 70% identical to an  
3 amino acid sequence as set forth in SEQ ID NO:1 or 3.
- 1                   2.       The nucleic acid of claim 1, wherein said polypeptide specifically  
2 binds to polyclonal antibodies generated against a polypeptide that comprises an amino  
3 acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3, SEQ  
4 ID NO:5 and SEQ ID NO:6.
- 1                   3.       The nucleic acid of claim 1, wherein said polypeptide comprises an  
2 amino acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:3,  
3 SEQ ID NO:5 and SEQ ID NO:6.
- 1                   4.       The nucleic acid of claim 1, wherein said polypeptide forms a  
2 dimer with a second ABC polypeptide, and wherein said dimer exhibits sterol transport  
3 activity.
- 1                   5.       The nucleic acid of claim 4, wherein said dimer is a heterodimer.
- 1                   6.       The nucleic acid of claim 4, wherein said sterol is cholesterol.
- 1                   7.       The nucleic acid of claim 5, wherein said second ABC polypeptide  
2 is ABC8.
- 1                   8.       The nucleic acid of claim 1, wherein said nucleic acid hybridizes  
2 under moderately stringent hybridization conditions to a nucleic acid comprising a  
3 nucleotide sequence as set forth in SEQ ID NO:2 or 4.
- 1                   9.       The nucleic acid of claim 8, wherein said nucleic acid hybridizes  
2 under stringent hybridization conditions to a nucleic acid comprising a nucleotide  
3 sequence as set forth in SEQ ID NO:2 or 4.
- 1                   10.      The nucleic acid of claim 1, wherein said nucleic acid comprises a  
2 nucleotide sequence at least about 70% identical to a sequence as set forth in SEQ ID  
3 NO:2 or 4.

- 1                    11.    The nucleic acid of claim 1, wherein said nucleic acid comprises a  
2    nucleotide sequence as set forth in SEQ ID NO:2 or 4.
- 1                    12.    The nucleic acid of claim 1, wherein said nucleic acid is greater  
2    than 502 nucleotides in length.
- 1                    13.    The nucleic acid of claim 1, wherein said nucleic acid is from a  
2    mouse or a human.
- 1                    14.    The nucleic acid of claim 1, wherein said nucleic acid is expressed  
2    in the intestine or in the liver in the presence of an LXR agonist.
- 1                    15.    The nucleic acid of claim 1, wherein said nucleic acid is expressed  
2    in a tissue selected from the group consisting of liver, jejunum, ileum, and duodenum.
- 1                    16.    An isolated nucleic acid encoding an SSG polypeptide, said  
2    polypeptide comprising an amino acid sequence selected from the group consisting of  
3    SEQ ID NO:5 and SEQ ID NO:6.
- 1                    17.    An expression cassette comprising the nucleic acid of claim 1  
2    operably linked to a promoter.
- 1                    18.    An isolated cell comprising the expression cassette of claim 17.
- 1                    19.    An isolated SSG polypeptide, said polypeptide comprising an  
2    amino acid sequence that is at least about 70% identical to an amino acid sequence as set  
3    forth in SEQ ID NO:1 or 3.
- 1                    20.    The isolated polypeptide of claim 19, wherein said polypeptide  
2    selectively binds to polyclonal antibodies generated against a polypeptide comprising an  
3    amino acid sequence as set forth in SEQ ID NO:1 or 3.
- 1                    21.    The isolated polypeptide of claim 19, wherein said polypeptide  
2    comprises an amino acid sequence as set forth in SEQ ID NO:1 or 3.
- 1                    22.    The isolated polypeptide of claim 19, wherein said polypeptide  
2    forms a dimer with a second ABC polypeptide, and wherein said dimer exhibits sterol  
3    transport activity.

1 23. The isolated polypeptide of claim 22, wherein said dimer is a  
2 heterodimer.

1 24. The isolated polypeptide of claim 23, wherein said second ABC  
2 polypeptide is ABC8.

1 25. The isolated polypeptide of claim 22, wherein said sterol is  
2 cholesterol.

1 26. The isolated polypeptide of claim 19, wherein said polypeptide is  
2 expressed in the intestine or in the liver in the presence of an LXR agonist.

1 27. The isolated polypeptide of claim 19, wherein said polypeptide is  
2 expressed in a tissue selected from the group consisting of the liver, jejunum, ileum, and  
3 duodenum.

1 28. The isolated polypeptide of claim 19, wherein said polypeptide is  
2 from a mouse or a human.

1 29. An antibody generated against the isolated polypeptide of claim 19.

1 30. An isolated SSG polypeptide, said polypeptide comprising an  
2 amino acid sequence selected from the group consisting of SEQ ID NO:5 and SEQ ID  
3 NO:6.

1 31. A method of making an SSG polypeptide, the method comprising:  
2 (i) introducing a nucleic acid of claim 1 into a host cell or cellular extract;  
3 and  
4 (ii) incubating said host cell or cellular extract under conditions such that  
5 said SSG polypeptide is expressed in the host cell or cellular extract.

1 32. The method of claim 31, further comprising recovering the SSG  
2 polypeptide from the host cell or cellular extract.

1 33. A method of identifying a compound useful in the treatment or  
2 prevention of a sterol-related disorder, said method comprising contacting an SSG  
3 polypeptide with a test agent, and determining the functional effect of said test agent upon

4 said polypeptide, wherein a functional effect exerted on said polypeptide by said test  
5 agent indicates that said test agent is a compound useful in the treatment or prevention of  
6 said sterol-related disorder.

1 34. The method of claim 33, wherein said sterol is cholesterol.

1 35. The method of claim 33, wherein said polypeptide comprises an  
2 amino acid sequence that is at least about 70% identical to an amino acid sequence as set  
3 forth in SEQ ID NO:1 or 3.

1 36. The method of claim 33, wherein said polypeptide is present in a  
2 cell or cell membrane.

1 37. The method of claim 33, wherein said polypeptide is bound to a  
2 heterologous ABC polypeptide, forming a heterodimer.

1 38. The method of claim 33, wherein said functional effect comprises  
2 an increase in the sterol transport activity of said polypeptide.

1 39. The method of claim 33, wherein said functional effect comprises a  
2 physical interaction between said test agent and said polypeptide.

1 40. The method of claim 39, wherein said physical interaction is  
2 detected using a direct binding assay.

1 41. The method of claim 33, wherein said sterol-related disorder is  
2 sitosterolemia.

1 42. The method of claim 33, wherein said sterol-related disorder is  
2 selected from the group consisting of hypercholesterolemia, hyperlipidemia, gall stones,  
3 HDL deficiency, atherosclerosis, and nutritional deficiencies.

1 43. A method of identifying a compound useful in the treatment or  
2 prevention of a sterol-related disorder, said method comprising contacting with a test  
3 agent a cell that expresses or is capable of expressing an SSG polypeptide, and  
4 determining the functional effect of said test agent upon said cell;

5                    wherein a functional effect exerted on said cell by said test agent indicates  
6                    that said test agent is a compound useful in the treatment or prevention of said sterol-  
7                    related disorder.

1                    44.        The method of claim 43, wherein said sterol is cholesterol.

1                    45.        The method of claim 43, wherein said SSG polypeptide comprises  
2                    an amino acid sequence that is at least about 70% identical to an amino acid sequence as  
3                    set forth in SEQ ID NO:1 or 3.

1                    46.        The method of claim 43, wherein said compound produces an  
2                    increase in the expression of an SSG gene that encodes said SSG polypeptide.

1                    47.        The method of claim 46, wherein said increase in the expression of  
2                    said SSG gene is detected by detecting the level of SSG mRNA in said cell.

1                    48.        The method of claim 46, wherein said increase in the expression of  
2                    said SSG gene is detected by detecting the level of SSG polypeptide in said cell.

1                    49.        The method of claim 46, wherein said increase in the expression of  
2                    said SSG gene is detected by detecting the level of SSG protein activity in said cell.

1                    50.        The method of claim 43, wherein said compound modulates the  
2                    level of sterol transport activity in said cell.

1                    51.        The method of claim 50, wherein said sterol transport activity in  
2                    said cell is detected by detecting the rate of sterol efflux in said cell.

1                    52.        The method of claim 51, wherein said sterol is cholesterol.

1                    53.        The method of claim 46, wherein said increase in the expression of  
2                    said SSG gene is mediated by LXR or RXR.

1                    54.        The method of claim 43, wherein said sterol-related disorder is  
2                    sitosterolemia.

1                    55.        The method of claim 43, wherein said sterol-related disorder is  
2                    selected from the group consisting of hypercholesterolemia, hyperlipidemia, gall stones,  
3                    HDL deficiency, atherosclerosis, and nutritional deficiencies.

1                   56.    A method of treating or preventing a sterol-related disorder in a  
2   mammal, said method comprising administering to said mammal a compound that  
3   increases the level of expression or activity of an SSG polypeptide in a plurality of cells  
4   of said mammal.

1                   57.    The method of claim 56, wherein said sterol is cholesterol.

1                   58.    The method of claim 56, wherein said sterol-related disorder is  
2   sitosterolemia.

1                   59.    The method of claim 56, wherein said sterol-related disorder is  
2   selected from the group consisting of hypercholesterolemia, hyperlipidemia, gall stones,  
3   HDL deficiency, atherosclerosis, and nutritional deficiencies.

1                   60.    The method of claim 56, wherein said compound produces a  
2   decrease in the amount of dietary sterol that is absorbed in said mammal.

1                   61.    The method of claim 56, wherein said compound produces a  
2   decrease in the amount of sterol that is retained in the liver of said mammal.

1                   62.    The method of claim 56, wherein said compound is identified using  
2   the method of claim 33 or 43.

1                   63.    The method of claim 56, wherein said compound causes an  
2   increase in LXR or RXR activity within cells of said mammal.

1                   64.    A method of prescreening to identify a candidate therapeutic agent  
2   that modulates SSG activity in a mammal, the method comprising:

3                   providing a cell which comprises an SSG polypeptide; and

4                   a test compound; and

5                   determining whether the amount of sterol transport activity in said cell is  
6   increased or decreased in the presence of the test compound relative to the activity in the  
7   absence of the test compound;

8                   wherein a test compound that causes an increase or decrease in the amount  
9   of sterol transport activity is a candidate therapeutic agent for modulation of SSG activity  
10   in a mammal.

